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Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

FEASIBILITY AND DIAGNOSTIC POTENTIAL OF REGADENOSON STRESS 2D-SPECKLE TRACKING ECHOCARDIOGRAPHY FOR DETECTION OF INDUCIBLE ISCHEMIA: INITIAL RESULTS OF THE SINGLE CENTER, PROSPECTIVE, RANDOMIZED, COMPARATIVE, SAME-SETTING STUDY OF REGADENOSON STRESS SPECT VERSUS 2D SPECKLE TRACKING ECHO (LEXI-ECHO TRIAL)

Poster Contributions
Poster Hall B1
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Background: The aim of the prospective, randomized, comparative Lexi-ECHO trial (NCT01150578) was to determine the feasibility and diagnostic potential of 2D speckle tracking Echo (STE) after Regadenoson (Lexiscan) administration (Lexi-Echo) in the evaluation of myocardial ischemia as determined by simultaneous pharmacologic stress myocardial perfusion SPECT (Lexi-SPECT).

Methods: All patients (pts) >18 yrs old referred for a clinically indicated Lexi-SPECT were screened. Pts with pacemakers, atrial fibrillation, LBBB, or contraindications for Lexiscan were excluded. Remaining pts were randomized (2:1 fashion) to undergo simultaneous Lexi-Echo and SPECT (active group) or Lexi-SPECT only (controls). Symptoms during Lexiscan stress were recorded in both study groups and compared. Echo was obtained before, during and immediately after Lexiscan administration for routine SPECT. The global longitudinal strain (GLS) was calculated from STE off-line analysis on a dedicated workstation at each stage in a blinded manner and compared to the SPECT findings. GLS values were compared in pts with normal perfusion, ischemia, scar and ischemia+scar on SPECT.

Results: 534 pts were screened and 378 were eligible for inclusion; 5 pts subsequently withdrew and 42 pts had suboptimal STE data. Final population included 331 pts (Lexi-Echo: N = 201; controls: N=130). There were no significant differences noted in the Lexi-Echo group vs controls in the Lexiscan-stress associated symptoms. There were 256 pts (77%) with normal and 75 pts (23%) with abnormal SPECT. 50 pts had evidence of scar and 25 pts had ischemia or mixed scar+ischemia. Pts with normal SPECT had significant increase in the GLS value at peak stress vs baseline (p=0.017), whereas pts with definitely abnormal SPECT had decline in the GLS (p=0.011). The most prominent GLS changes were noted in pts with ischemia (p=0.002).

Conclusion: Lexi-Echo is a feasible and safe methodology with a promising diagnostic potential. If proven effective in further diagnostic and prognostic research, this methodology may provide a significant cost, time and radiation benefit and lead to a practice change in subset of pts requiring vasodilator stress testing.